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(54) Socket for miniature memory card

(57) A memory card socket (10) having a frame (20) adapted for connection to a peripheral device and defining a card receiving opening (23) adapted to receive a memory card (100). The socket includes a contact array (60,70) which provides a connection between the card and the peripheral device. The contact array includes a plurality of spring force contacts (60) comprising a fixed

portion (78) and a coil portion (80) which is loaded upon insertion of the card. The socket further includes a release mechanism (30) which, upon actuation, allows unloading of the spring force contacts (60) and ejection of the card (100).

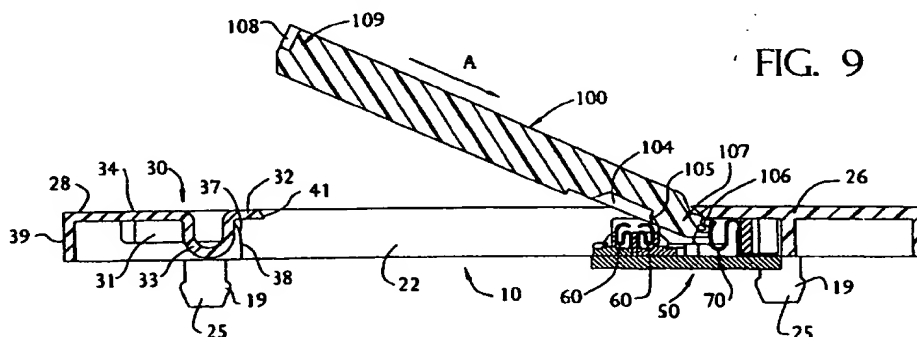


FIG. 9

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EUROPEAN SEARCH REPORT

Application Number
EP 98 31 0291

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	GB 2 021 334 A (PROMOTORS LTD) 28 November 1979 (1979-11-28) * page 2, line 35-65; figures 2,4-6 *	1,2,5-9	H05K5/02 H01R23/72 G06K19/077
A	US 5 067 904 A (MURAYAMA TAKAYUKI ET AL) 26 November 1991 (1991-11-26) * abstract; figures 1,5,6 *	1,2,5-9	
A	US 5 224 873 A (DUFFET GUY ET AL) 6 July 1993 (1993-07-06) * column 3, line 46 - column 5, line 15; figures 1-3 *	1,2,5-9	
A	EP 0 528 228 A (MOLEX INC) 24 February 1993 (1993-02-24) * column 3, line 42 - column 5, line 28; figures 1-4 *	1,2,5-9	
A	EP 0 512 714 A (YAMAICHI ELECTRIC CO LTD) 11 November 1992 (1992-11-11)		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H01R H05K G06K
-The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 May 1999	Examiner Waern, G
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1, 2, 5-9



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1,2,5-9

A memory card socket with a frame and a release mechanism and a contact array including a plurality of spring force contacts each contact having a fixed portion and a coil portion.

2. Claims: 3,4

A memory card socket having a frame and a release mechanism formed integrally with the rear frame member.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 31 0291

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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20-05-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2021334 A	28-11-1979	DE 2919577 A	29-11-1979
US 5067904 A	26-11-1991	JP 2021746 C	26-02-1996
		JP 7044052 B	15-05-1995
		JP 63274076 A	11-11-1988
US 5224873 A	06-07-1993	FR 2676566 A	20-11-1992
		AU 653807 B	13-10-1994
		AU 1594192 A	19-11-1992
		DE 69213555 D	17-10-1996
		DE 69213555 T	23-01-1997
		EP 0515897 A	02-12-1992
		ES 2093137 T	16-12-1996
		JP 5197842 A	06-08-1993
		NZ 242604 A	26-10-1994
EP 0528228 A	24-02-1993	US 5154620 A	13-10-1992
		DE 69208179 D	21-03-1996
		DE 69208179 T	27-06-1996
		JP 2089498 C	02-09-1996
		JP 5211084 A	20-08-1993
		JP 7089507 B	27-09-1995
		KR 9601566 Y	21-02-1996
EP 0512714 A	11-11-1992	JP 2042012 C	09-04-1996
		JP 4329280 A	18-11-1992
		JP 7036343 B	19-04-1995
		CA 2066795 A	03-11-1992
		US 5234349 A	10-08-1993

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